

Intel® Agilex™ F-Series FPGA and SoC FPGA Product Table



PRODUCT LINE		AGF 006	AGF 008	AGF 012	AGF 014	AGF 022	AGF 027
Resources	Logic elements (LEs)	573,480	764,640	1,178,525	1,437,240	2,208,075	2,692,760
	Adaptive logic modules (ALMs)	194,400	259,200	399,500	487,200	748,500	912,800
	ALM registers	777,600	1,036,800	1,598,000	1,948,800	2,994,000	3,651,200
	eSRAM memory blocks	0	0	2	2	0	0
	eSRAM memory size (Mb)	0	0	36	36	0	0
	M20K memory blocks	2,844	3,792	5,900	7,110	10,900	13,272
	M20K memory size (Mb)	56	74	115	139	212	259
	MLAB memory count	9,720	12,960	19,975	24,360	37,425	45,640
	MLAB memory size (Mb)	6	8	12	15	23	28
	Variable-precision digital signal processing (DSP) blocks	1,640	2,296	3,743	4,510	6,250	8,528
	18 x 19 multipliers	3,280	4,592	7,486	9,020	12,500	17,056
	Single-precision or half-precision tera floating point operations per second (TFLOPS)	2.5 / 5.0	3.5 / 6.9	6.0 / 12.0	6.8/13.6	9.4 / 18.8	12.8/25.6
	Maximum EMIF x72	2	2	4	4	4	4
	Maximum Available Device Resources	Maximum differential (RX or TX) pairs	192	288	384	384	384
AIB interfaces		2	2	2	2	4	4
Memory devices supported		DDR4 and QDR IV					
Secure data manager		AES-256/SHA-256 bitstream encryption/authentication, physically unclonable function (PUF), ECDSA 256/384 boot code authentication, side channel attack protection					
Hard processor system		Quad-core 64 bit Arm Cortex-A53 up to 1.41 GHz with 32 KB I/D cache, NEON coprocessor, 1 MB L2 cache, direct memory access (DMA), system memory management unit, cache coherency unit, hard memory controllers, USB 2.0x2, 1G EMAC x3, UART x2, serial peripheral interface (SPI) x4, I2C x5, general purpose timers x7, watchdog timer x4					
Tile Resources	F-Tile	PCI Express(PCIe) hard IP block (Gen4 x16) or Bifurcateable 2x PCIe Gen4 x8 (EP) or 4x Gen4 x4 (RP) Transceiver channel count : 16 channels at 32 Gbps (NRZ) /12 channels at 58 Gbps (PAM4) - RS & KP FEC Advanced networking support: - Bifurcatable 400 GbE hard IP block (10/25/50/100/200/400 GbE FEC/PCS/MAC) - Bifurcatable 200 Gb hard IP block (10/25/50/100/200 Gbps FEC/PCS) IEEE 1588 v2 support PMA direct					
	E-Tile	Transceiver channel count : Up to 24 channels at 28.9 Gbps (NRZ) / 12 channels at 57.8 Gbps (PAM4) - RS & KP FEC' Networking support : - 400GbE (4 x 100GbE hard IP blocks (10/25 GbE FEC/PCS/MAC)) IEEE 1588 v2 support PMA direct					
	P-Tile	PCIe hard IP block (Gen4 x16) or Bifurcateable 2x PCIe Gen4 x8 (EP) or 4x Gen4 x4 (RP) SR-IOV 8PF / 2kVF VirtIO support Scalable IOV					

Note 1: Only 4 instances of KP-FEC are supported when using 100GE MAC

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F-Tile Resources	F Tile PCI Express® (PCIe) hard IP blocks (Gen4x16) or Bifurcateable 2x PCIe Gen4 x8 (EP) or 4x Gen4 x4 (RP)			2			
	F Tile Transceiver Channel Count PAM4 (up to 58 Gbps) - RS & KP FEC NRZ (up to 32 Gbps)			24x PAM-4 32x NRZ			
	F Tile 10/25/50/100/200/400G Ethernet MAC + FEC hard IP blocks			2			
E-Tile/ P-Tile Device Resources	P Tile PCI Express® (PCIe) hard IP blocks (Gen4x16) or Bifurcateable 2x PCIe Gen4 x8 (EP) or 4x Gen4 x4 (RP)			1			
	E Tile Transceiver Channels PAM4 (up to 57.8 Gbps) - RS & KP FEC NRZ (up to 28.9 Gbps)			12x PAM-4 24x NRZ			
	E Tile 100G Ethernet MAC + FEC hard IP Blocks			4			
F-Tile - Package Options and I/O Pins		GPIO (LVDS) / F-Tile 32G NRZ (58G PAM4)					
R1546A (37.5 mm x 34 mm, 0.92 mm Hex)	384(192)/32(24)	384(192)/32(24)					
R2340A (45 mm x 42 mm, 0.92 mm Hex)	576(288)/32(24)	576(288)/32(24)	744(372)/32(24)	744(372)/32(24)	744(372)/32(24)	744(372)/32(24)	744(372)/32(24)
R3184C (56 mm x 45 mm, 0.92 mm Hex)					720(360)/64(48)	720(360)/64(48)	
E-Tile and P-Tile - Package Options and I/O Pins		GPIO (LVDS) / E-Tile 28.9G NRZ (57.8G PAM4) / P-Tile 16G PCIe					
R2486A (55 mm x 42.5 mm, 1.0 mm Hex)			768(384)/16(8)/16	768(384)/16(8)/16			
R2581A (50 mm x 40.5 mm, 0.92 mm Hex)					624(312)/24(12)/32	624(312)/24(12)/32	